

What is claimed is:

1. A floor panel structure of a vehicle body where an vehicle floor has floor panels with peripheral edges thereof linked to a plurality of frame members that are disposed in a vehicle body lengthwise direction and a vehicle body crosswise direction and linked to an engine or a suspension, the floor panel comprising:

a joint where at least part of peripheral edge thereof is joined to the frame member;

a low-rigidity area formed along the entire length of the joint; and

a high-rigidity area formed within the low-rigidity area;

wherein the low-rigidity area forms a vibration blocking area along the entire length of the joint by using a difference in rigidity from the high-rigidity area.

2. A floor panel structure of a vehicle body according to claim 1, wherein the joint of the floor panel is formed around the entire peripheral edge area of the floor panel and the low-rigidity area of the floor panel is formed continuously over the entire length of the joint.

3. A floor panel structure of a vehicle body according to claim 1, wherein a side area on the vehicle body inside of the floor panel does not have the joint and the low-rigidity area formed but is formed as a unit with a floor tunnel area protruding upward from the vehicle body where none of the frame members are provided.

4. A floor panel structure of a vehicle body according to claim 1, wherein the floor panel is formed such that the region between the joint and the low-rigidity area is substantially absent.

5. A floor panel structure of a vehicle body according to claim 1, wherein the low-rigidity area of the floor panel is formed such that the rigidity thereof is substantially constant over the entire length of the joint with the frame member.

6. A floor panel structure of a vehicle body according to claim 1,

wherein the low-rigidity area of the floor panel is formed in a linear manner corresponding to the frame member.

7. A floor panel structure of a vehicle body according to claim 1, wherein the floor panel further comprises damping material provided
5 only in the low-rigidity area or only in the low-rigidity area and vicinity thereof.

8. A floor panel structure of a vehicle body according to claim 1, wherein the floor panel further comprises first damping material provided in the low-rigidity area of the floor panel, and second damping
10 material provided in the high-rigidity area of the floor panel, the damping performance of the first damping material being greater than that of the second damping material.

9. A floor panel structure of a vehicle body according to claim 1, wherein the low-rigidity area of the floor panel is a groove or bead
15 protruding downward, and the high-rigidity area of the floor panel is a flat panel area occupying the majority of the floor panel.

10. A floor panel structure of a vehicle body according to claim 1, wherein the vibration blocking area of the floor panel reduces the transmission of vibrations above a predetermined frequency, and the
20 high-rigidity area of the floor panel has a vibration mode adjusting area that vibrates in a 2×1 vibration mode at a first specific frequency below the predetermined frequency so as to suppress the generation of acoustic emissions.

11. A floor panel structure of a vehicle body according to claim 10,
25 wherein the predetermined frequency is approximately 200 Hz.

12. A floor panel structure of a vehicle body according to claim 10, wherein the low-rigidity area of the floor panel is a bead, the bead defines regions of the vibration mode adjusting area, and the vibration blocking area including the bead and the vibration mode adjusting area are
30 formed as a unit.

13. A floor panel structure of a vehicle body according to claim 1, wherein the high-rigidity area of the floor panel is a curved surface formed protruding upwards or downwards, the low-rigidity area of the floor panel is a flat planar area, and damping material is provided only in the planar area of the floor panel.

14. A floor panel structure of a vehicle body according to claim 1, wherein the high-rigidity area of the floor panel is a curved surface formed protruding upwards or downwards, the low-rigidity area of the floor panel is a flat planar area, damping material is provided in the planar area and curved surface of the floor panel, and the damping material is provided in larger quantities upon the planar area than the curved surface.

15. A floor panel structure of a vehicle body according to claim 13, wherein the curved surface of the floor panel is formed such that a boundary thereof with the planar area is substantially circular or substantially elliptical in shape.

16. A floor panel structure of a vehicle body according to claim 13, wherein one curved surface of the floor panel is provided in a region enclosed by the plurality of frame members.

17. A floor panel structure of a vehicle body according to claim 13, wherein the curved surface and planar area of the floor panel functions as a vibration mode adjusting area that causes the region enclosed by the plurality of frame members to vibrate in a 2×1 vibration mode at a second specific frequency.

18. A floor panel structure of a vehicle body according to claim 17, wherein the second specific frequency is a tire cavity resonance frequency.

19. A floor panel structure of a vehicle body according to claim 17, wherein the second specific frequency is approximately 250 Hz.

20. A floor panel structure of a vehicle body according to claim 13,

wherein the planar area of the floor panel is linked to the frame member or formed as a unit with a floor tunnel area, the curved surface of the floor panel is formed protruding upward, the side surface of the frame member or the rising area of the floor tunnel area, the planar area and the rising area of the curved surface are formed as groove shapes, and the interior of the groove shapes are coated with the damping material.

21. A floor panel structure of a vehicle body according to claim 20, wherein the damping material is respectively adhered to the side surface of the frame member or the rising area of the floor tunnel area, the planar area and the rising area of the curved surface.

22. A floor panel structure of a vehicle body according to claim 13, wherein sound-absorbing material is provided on the curved surface of the floor panel.